

## The Integrated Strategy of Maintenance with a Scientific Analysis

**Authors :** Mahmoud Meckawey

**Abstract :** This research is dealing with one of the most important aspects of maintenance fields, that is Maintenance Strategy. It's the branch which concerns the concepts and the schematic thoughts in how to manage maintenance and how to deal with the defects in the engineering products (buildings, machines, etc.) in general. Through the papers we will act with the followings: i) The Engineering Product & the Technical Systems: When we act with the maintenance process, in a strategic view, we act with an (engineering product) which consists of multi integrated systems. In fact, there is no engineering product with only one system. We will discuss and explain this topic, through which we will derivate a developed definition for the maintenance process. ii) The factors or basis of the functionality efficiency: That is the main factors affect the functional efficiency of the systems and the engineering products, then by this way we can give a technical definition of defects and how they occur. iii) The legality of occurrence of defects (Legal defects and Illegal defects): with which we assume that all the factors of the functionality efficiency been applied, and then we will discuss the results. iv) The Guarantee, the Functional Span Age and the Technical surplus concepts: In the complementation with the above topic, and associated with the Reliability theorems, where we act with the Probability of Failure state, with which we almost interest with the design stages, that is to check and adapt the design of the elements. But in Maintainability we act in a different way as we act with the actual state of the systems. So, we act with the rest of the story that means we have to act with the complementary part of the probability of failure term which refers to the actual surplus of the functionality for the systems.

**Keywords :** engineering product and technical systems, functional span age, legal and illegal defects, technical and functional surplus

**Conference Title :** ICRM 2018 : International Conference on Reliability and Maintainability

**Conference Location :** Barcelona, Spain

**Conference Dates :** August 20-21, 2018